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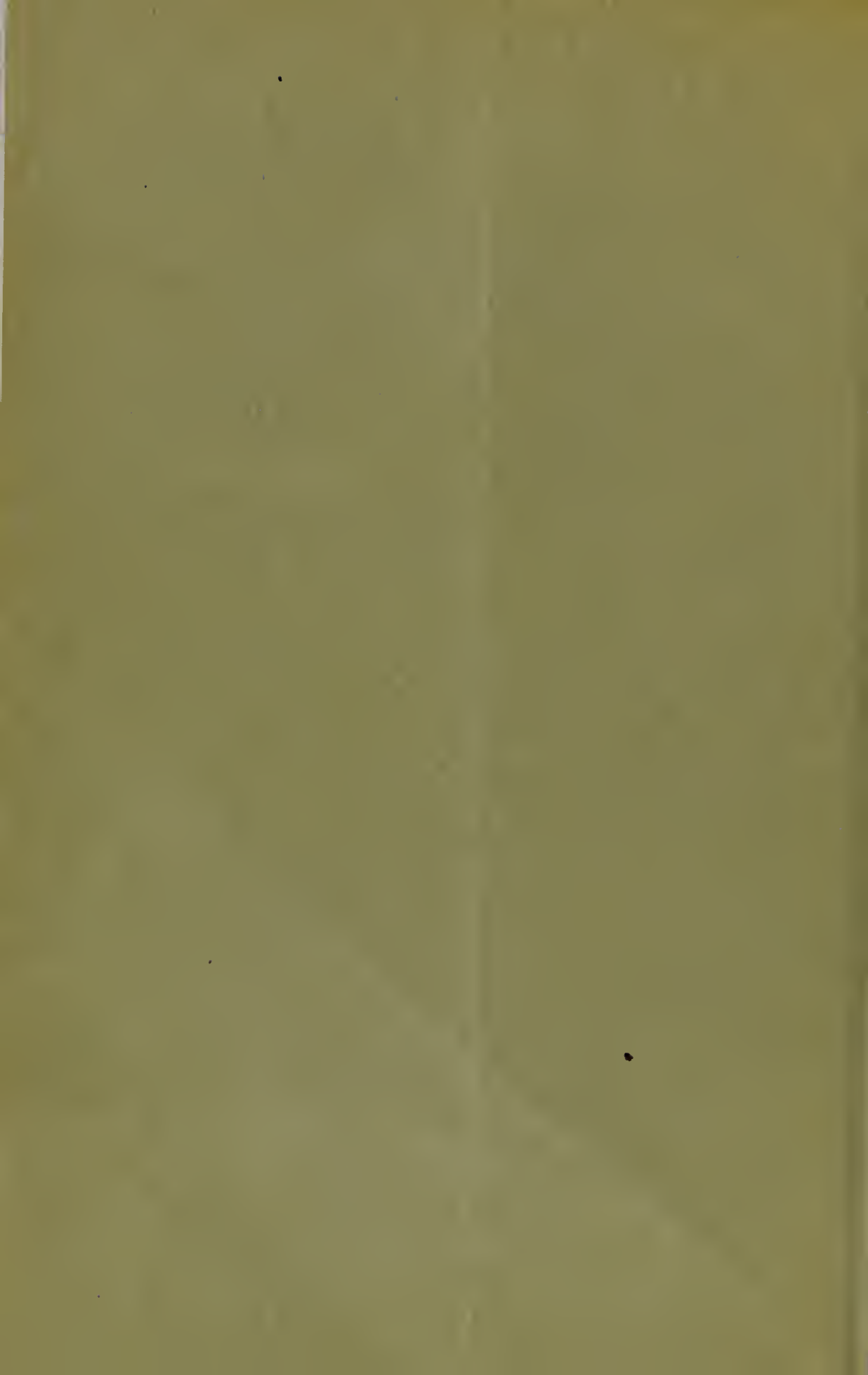
BALTIMORE.

With Microscopical Notes by W. G. MACCALLUM, M.D.

Associate Professor of Pathology, Johns Hopkins
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A CASE OF INTRAOCULAR TUBERCULOSIS WHICH CLOSELY SIMULATED GLIOMA OF THE RETINA.*

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WITH MICROSCOPICAL NOTES BY W. G. MACCALLUM, M.D.

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Edward B., a negro lad, 5 years of age, was first seen Feb. 6, 1907, in the out-patient department of the Baltimore Eye, Ear and Throat Charity Hospital. His right eye, the conjunctiva of which was injected, exhibited a circumscribed scleral staphyloma to the nasal side of the cornea. Ophthalmoscopic examination showed marked opacity of the vitreous humor, with a reflex strongly suggestive of glioma of the retina, and this view of the nature of the affection appeared to be confirmed by the yielding of the sclera, the intraocular growth seeming to be about to break through the ocular tunics. Immediate enucleation of the eye was urged, but not accepted.

Three weeks later, February 26, the case reappeared in my clinic at the Johns Hopkins Hospital. The bulging of the sclera by this time had increased somewhat and ulceration of the overlying conjunctiva had occurred. No appreciable change in the intraocular condition was observable with the ophthalmoscope. Removal of the eye was again urged, and this time my advice was accepted and the patient was admitted to the hospital.

Two days subsequently the eye was enucleated in the usual manner, except that the conjunctiva and subconjunctival tissue in the region of the staphyloma were removed, as well as a part of the

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internal rectus muscle. Recovery from the operation was uneventful.

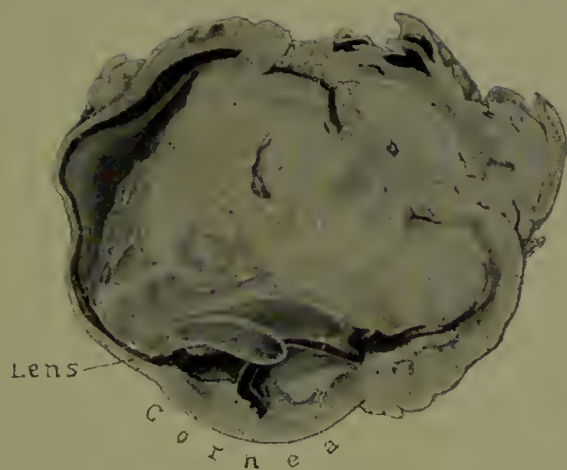
During the patient's stay in the hospital an abscess found to be present in the calf of his right leg was opened and a considerable quantity of pus evacuated. A careful examination of the lungs, heart and abdominal organs made at this time showed nothing abnormal.

The enucleated eye was sent to the pathologic laboratory of the hospital, where it was examined by Dr. W. G. MacCallum. As will be seen from his report, the intraocular changes which I had regarded as almost certainly due to glioma were, in fact, tuberculous in character.

At the present writing, nine weeks having elapsed since the removal of the eye, the orbital contents present a healthy appearance and the lad's general condition is fairly good, though the operation wound in the leg has not yet closed and there is a glandular enlargement in front of the left ear.

MICROSCOPICAL NOTES BY DR. MACCALLUM.

Section through the middle of the eye shows a mass of abnormal tissue occupying a large part of the cavity of the eye (Fig. 3). The lens is pushed forward and the retina is included in the mass and lifted up from the underlying chorioid, from which it is separated by a pigmented coagulated mass. The vitreous humor is reduced to a small amount lying between the foreign mass and the lens. The deeply-stained mass of material occupying the cavity of the eye is seen to extend through the sclera and to spread out upon the outer surface of the eyeball, extending forward as far as the cornea. On the opposite (temporal) side the sclera is apparently intact. The optic nerve shows on one side a small portion of the same deeply staining tissue. Microscopically it is found that this mass is composed of a dense granulation tissue, throughout which are scattered numerous tubercles with typical giant cells, concentric arrangement of epithelial cells, lymphoid cells, etc. There are quite extensive areas of necrosis, with fine fragmentation of the nuclei. The tuberculous granulation tissue is found to begin far forward in the retina, in the substance of which at about the ora serrata there are isolated tubercles. On passing backward it is





found that the elements of the retina are spread wide apart by the growth of tuberculous tissue, and fragments of retina are found scattered here and there in the substance of this tissue, usually, however, on its outer surface. The same thing is true on the other side of the eye, where the tuberculous tissue extends forward to the region of the ciliary muscle. The sclera is interrupted at one point, and the tuberculous tissue is continuous with that on the outer surface, which has the same general characteristics. In the space between the tuberculous mass and choroid, that is, outside of the displaced retina, the fluid and blood which fill that space are permeated by delicate strands of newly-formed connective tissue cells. This is true also of the fluid in front of the retina, for from both sides of the retina near its anterior margin there springs a loose granulation tissue, which sends off these fine filaments in the fluid contents of the eye. The cornea and lens are unaffected. The sclera at the posterior surface of the eye shows a few scattered tubercles in its substance. Repeated search for tubercle bacilli revealed none.

Many cases are reported in which tuberculous lesions of cornea, sclera, conjunctiva, etc., occurred, and not a few of tuberculosis of the iris.

Schultze (*Archiv. f. Augenheilk.* Bd. 33, s. 145-158) described the chronic tuberculous iritis with exudate into the anterior chamber, and thinks it due to infection from the conjunctival sac.

Ammann (*Zur Irstuberkulose, Klin. Monats. f. Augenheilk.*, Bd. 35, 1897, s. 135) found in one case a large white tumor in the corpus ciliare bordering on the iris and cornea.

Lubowski (*Arch. f. Augenheilk.*, Bd. 35, Heft 1-3, s. 183-191) describes a case in which the retina, iris and ciliary body were tuberculous and gave symptoms of glaucoma. The retina in its posterior part was thickened to three times the normal. A flat, cauliflower-like mass projected from the papilla of the optic nerve into the vitreous. Microscopically this was a tuberculous mass. This probably began in the iris and later affected the retina by implantation from the iris. Lubowski could find only three cases in the literature.

Occasionally, but not often, there are glaucomatous symptoms. De Berardini (*Tuberculosi bulbare cronica propagata al nervo ot-*

tico, *Lavori della clin. ocul. R. Univ. d. Napole*, V., p. 254) described an eye filled with tuberculous masses which extended into the optic nerve and onto the conjunctiva. Animal inoculations positive.

The retina is generally only secondarily affected, even in severe intraocular tuberculosis.

In Kunz's case (*Tuberkulose des Auges*, etc., Inaug. Diss. Marburg, 1898) the retina was involved; and O'Sullivan and Story (Tuberculosis of Retina, Transactions of Royal Academy of Medicine of Ireland, Vol. xvii, p. 1) describe a case in which the retina was the chief seat of infiltration.

